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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/766,161

01/28/2004

Robert Floyd Payne

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EXAMINER

GUARINO, RAHEL

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

05/18/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

**Application No.**

10/766,161

**Applicant(s)**

PAYNE ET AL.

**Examiner**

Rahel Guarino

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 14, 16 and 17-23 is/are rejected.
- 7) ☒ Claim(s) 10-13 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claim 9 and 16-17** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "about equal" in claim 9 is a relative term which renders the claim indefinite. The term "about equal" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

2. The term "substantially similar resistance" in claim 16 is a relative term, which renders the claim indefinite. The term "substantially similar resistance" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**4. Claim 1-7, 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. US, 7,076,377 in view of Nakai US, 6,370,212.**

Re claim 1, Kim discloses a clock recovery device comprising (fig.3):

a sample component (100) that obtains center and edge samples of a serial data stream (din; col. 6 line 3-16).

a number of voting components (102) that identify early and late operation for a set of consecutive bit times of the serial data stream from the obtained center and edge samples (col. 6 line 16-22); does not teach an average operation for the set of consecutive bit.

However, Nakai teaches an average operation for the set of consecutive bit (col. 9 line 14-30).

Therefore, taking the combined teaching of Kim and Nakai as a whole would have been rendered obvious to one skilled in the art to modify Kim to generate an average operation for the set of consecutive bit for the benefit of extracting the clock component from the data (col. 12 line 66 to col. 13 line 7).

Re claim 2, the modified invention as claimed in claim 1, further comprising a data clock (dclk) and a transition clock (eclk), wherein the sample component employs the data clock to obtain center samples (col. 5 line 9-15, "Kim") and the transition clock to obtain edge samples (col. 6 line 4-8, "Kim").

Re claim 3, the modified invention as claimed in claim 2, wherein the center samples are obtained on a rising edge of the data clock and the edge samples are

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obtained on a rising edge of the transition clock (col. 6 line 4-16,"Kim").

Re claim 4, the modified invention as claimed in claim 2, wherein the analyzer component adjusts operation of the data clock (col. 13 line 10 to col. 14 line 11,"Nakai" and the transition clock according to the average operation of the set of consecutive bit times (col. 9 line 41 to col. 10 line 30,"Nakai").

Re claim 5, the modified invention as claimed in claim 1, wherein the set of consecutive bit times comprises 8 bits (col. 6 line 53-56,"Nakai").

Re claim 6, the modified invention as claimed in claim 1, wherein the set of consecutive bit times comprises 16 bits (fig.7;"Nakai").

Re claim 7, the modified invention as claimed in claim 1 (fig.3), wherein the number of voting components respectively obtain a previous center sample, a current edge sample, and a current center sample from the sample component (121, 120; col. 6 line 5-16,"Kim") for one of the consecutive bit times and identify early and late operation for the one bit time according to the previous center sample, the current edge sample, and the current center sample (col. 6 line 16-25,"Kim").

Re claim 18, Kim discloses a method of detecting early/late operation of clocks comprising (fig.3):

obtaining center and edge samples of a received serial data stream for a set of consecutive bit times according to data and transition clocks (col. 6 line 16-22);

analyzing the set of consecutive bit times to identify late operation(s) of the clocks within the respective consecutive bit times according to the obtained center and edge samples (col. 6 line 16-25);

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analyzing the set of consecutive bit times to identify early operation(s) of the clocks within the respective consecutive bit times according to the obtained center and edge samples (col. 6 line 16-24), does not teach an average operation for the set of consecutive bit.

However, Nakai teaches an average operation for the set of consecutive bit (col. 9 line 14-30).

Therefore, taking the combined teaching of Kim and Nakai as a whole would have been rendered obvious to one skilled in the art to modify Kim to comparing the identified late operation(s) with the identified early operation(s) for the benefit of extracting the clock component from the data (col. 12 line 66 to col. 13 line 7).

Re claim 19, the modified invention as claimed in claim 18, further comprising adjusting data (col. 13 line 10 to col. 14 line 11, "Nakai") and the transition clocks according to the average operation of the set of consecutive bit times (col. 9 line 41 to col. 10 line 30, "Nakai").

Re claim 20, the modified invention as claimed in claim 18, wherein obtaining center samples comprises sampling the received serial data stream on rising edges of a data clock (col. 5 line 9-15 "Kim").

Re claim 21, the modified invention as claimed in claim 20 (fig. 3), wherein obtaining edge samples comprises sampling (sampling using data/edge samplers (100)) the received serial data stream (din) on rising edges of a transition clock (col. 6 line 3-16, "Kim").

Re claim 22, the modified invention as claimed in claim 18, wherein analyzing the

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set of consecutive bit times to identify late operation(s) comprises identifying a transition between a current edge sample and a previous center sample for each bit time (col. 6 line 16-25, "Kim");

Re claim 23, the modified invention as claimed claim 18, wherein analyzing the set of consecutive bit times to identify early operation(s) comprises identifying a transition between a current edge sample and a current center sample for each bit time (col. 6 line 16-24, "Kim").

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**6. Claim 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. US, 7,076,377 in view of Li et al. US, 6,693,985.**

Re claim 8, Kim discloses a voting component comprising (fig.3), does not explicitly teach a sample input node.

However, Li teaches a current center sample input node (100) that receives a current center sample (col. 2 line 54-57); a current edge sample input node (101) that receives a current edge sample; a previous center sample input node (102) that receives a previous center sample; an early output node that selectively draws a reference current according to the current center sample, the current edge sample, and

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the previous center sample; a late output node that selectively draws the reference current according to the current center sample, the current edge sample, and the previous center sample (col. 5 line 1-30, "Li"); and circuitry for selectively controlling the early output node and the late output node (col. 5 line 34-39, "Li").

Therefore, taking the combined teaching of Kim and Li as a whole would have been rendered obvious to one skilled in the art to modify Kim to use a sample input node and the control signal for the benefit of synchronizing the sampling signal (col. 3 line 40-48, "Li").

Re claim 9, the modified invention as claimed in claim 8, wherein the first reference current and the second reference current are about equal (fig.5; col. 6 line 19-35, "Li"). It is obvious to one skilled in the art that a transistor with a logic gating function has a network of resistors. Li provides an array of logic gates (col. 5 line 40-45) and a clock divider circuitry (112; col. 5 line 55 to col. 6 line 6) where the sampling clock generates clock signals. Therefore, the current of the resistors will remain consistent.

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. US, 7,076,377 in view of Garlepp et al. US, 6,920,622.**



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Re claim 14, Kim discloses a clock recovery device comprising (fig.3):

a sample component (100) that obtains center and edge samples of a serial data stream (din; col. 6 line 3-16);

a number of voting components (100) that identify early and late operation for a set of consecutive bit times of the serial data stream from the obtained center and edge samples (col. 6 line 16-22), does not teach selectively draw a reference current at early and late output nodes.

However, Nakai teaches selectively draw a reference current at early and late output nodes according to the identified operation (fig.7; col. 7 line 44-59).

an analyzer (704,"Garlepp") that measures and compares current drawn by the number of voting components at the early and late output nodes and indicates an average operation based upon the comparison (col. 7 line 35-40, "Garlepp").

Therefore, taking the combined teaching of Kim and Garlepp as a whole would have been rendered obvious to one skilled in the art to modify Kim to measure and compare current for the benefit of increasing and decreasing by the appropriate offset (col. 7 line 63-65,"Garlepp").

***Allowable Subject Matter***

9. Claim 10-13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rahel Guarino whose telephone number is 571-270-1198. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Payne David can be reached on 571-272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

RG

  
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SUPERVISORY PATENT EXAMINER